

ONE CYCLE CONTROL PFC BOOST CONVERTER INTEGRATED
CIRCUIT WITH INRUSH CURRENT LIMITING, FAN MOTOR SPEED
CONTROL AND HOUSEKEEPING POWER SUPPLY CONTROLLER

ABSTRACT OF THE DISCLOSURE

A power factor corrected boost converter circuit comprising a rectifier connectable to an ac input and having a rectified dc output provided across a dc bus, an inductor having first and second terminals connected in one leg of the dc bus, a first terminal of the inductor coupled to the output of said rectifier, an integrated circuit comprising a control circuit for controlling a switch, the integrated circuit comprising a housing enclosing the control circuit, the integrated circuit having a power terminal, a ground terminal, a first control input terminal coupled to an output of the converter circuit, and a second control input terminal coupled to a sensor for sensing current in the dc bus and further having an output terminal connected to the switch, a boost rectifier diode having a first terminal, the first terminal of the diode coupled to the second terminal of the inductor, the diode having a second terminal, and a storage capacitor connected to the second terminal of the diode, wherein the control circuit comprises a one cycle control circuit having an integrator reset by a clock signal for each cycle of the clock signal, the integrator receiving as an input a signal provided on said first control input terminal, further comprising an inrush current limiting circuit for limiting the current through the inductor to a value below a predetermined level. Also disclosed is a fan motor speed controller and a housekeeping power supply controller.